Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

Vol. 4. New York, August 4, 1849. No. 46.

THE
Scientific American.
THE
BEST MECHANICAL PAPER IN THE WORLD.
CIRCULATION 13,000.
PUBLISHED WEEKLY.
At 128 Fulton Street, New York (Sun Building,) and 13 Court Street, Boston, Mass.
By Munn & Company.
The Principal Office being at New York.
Barlow & Payne, Agents, 89 Chancery Lane, London

TERMS---$2 a year---$1 in advance, and the remainder in 6 months.

Poetry.

THE FACTORY GIRL.

Bending o'er the shuttle's path
Labors long the factory girl,
Smiling, singing, working ever,
Flinging back the wandering curl ;
Musing over the pleasant hopes
Fancy brightens in her way,
Never lingers—never mopes,
Works—works the live long day.

Work, the spirit word that moves her,
Gives her action, gives her pride ;
Work, that teaches what behooves her
Whom poor parents' wants betide ;
Cheerful ever, as bright fancies
'Gender in the future time,
Growing as her work advances,
Brightening fancies—hope sublime.

In the woof, whose threads are mixing
Curious fabrics for mankind,
Hope, the artist's gaily fixing
Pictures of bright threads combined
Pleasant homes and fortune smiling
On the troubled sea of life,
E'en its frowns herself beguiling
As the daughter, sister, wife.

Some dear cottage for the dwelling,
'Mongst her pleasant native hills,
From their midst ne'er ceasing swelling
Purest streamlets, childhood's rills ;
Fields about her house extending,
Clothed from nature's wardrobe bright ;
Trees with fruitage loaded, bending,
Childhood's visions greet her sight.

Parents loving, sisters sharing
Ev'ry joy and ev'ry care,
Brothers for affection daring
All the toils that brothers dare,
Friends of childhood, friends now nearer
To affection's golden shrine,
Loves of childhood, loves now dearer,
In these pictures most divine.

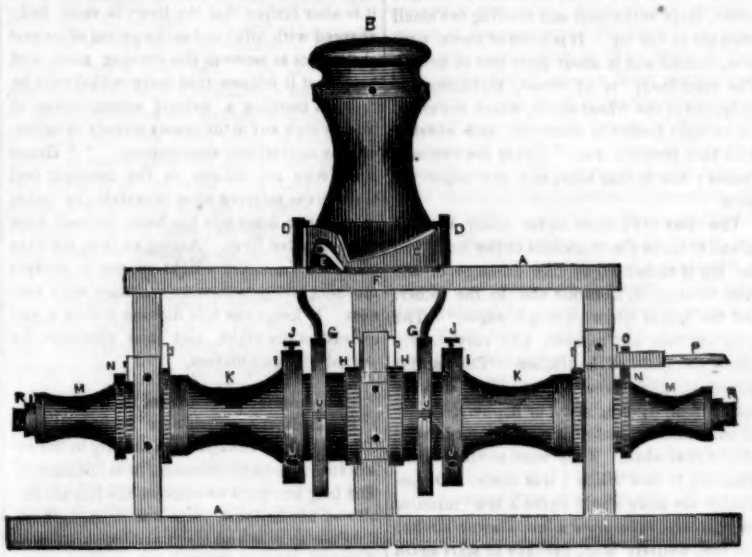
As the shuttle speeds its journey,
As the threads their fabric weave,
Gather there these pleasing pictures—
All too pleasing to deceive ;
Working—working—working—working,
Flinging back the wandering curl,
'Neath whose shadow smiles are lurking,
Labors long the factory girl.

The Turf is Green upon Thee.

The turf is green upon thee,
Thou'rt wedded to thy rest,
With the cold damp earth upon thee,
And thine arms across thy breast :
The light hath waned around thee,
In which the spirit breathed ;
And thou has faded from the flowers
With which thy brow was wreathed.

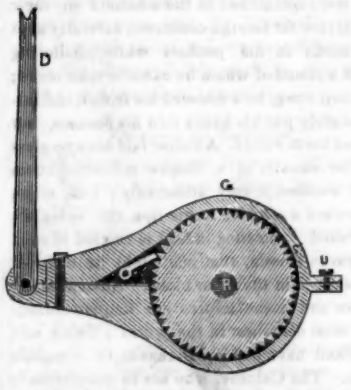
Oh ! thou wert too mild and beautiful,
A sunbeam in life's showers ;
Thou wert too mild and beautiful,
For this frail earth of ours :
So they have taken thee away—
Fair spirits like our own,
And thou art gone to be with them
In sight of God's high throne.

COMBINED CAPSTAN AND WINDLASS.---Figure 1.



This ship apparatus is the invention of Mr. Joseph E. Andrews, of South Boston, Mass, the inventor of the steering apparatus in our last week's paper. For this invention he has also taken measures to secure a patent. Fig. 1 is a front elevation, and fig. 2 a transverse section, showing how the windlass is moved round by the reciprocating rod D. The same letters refer to like parts. The invention is composed of three parts. 1st, the working of the windlass by the capstan, by means of a series of inclined planes secured around the lower part of the capstan to raise up and depress two lever rods, which by such reciprocating motion, give an intermittant rotary motion to the windlass. 2d. The windlass is made in sections, one fast, and another to be thrown out and in gear at pleasure, so that one or two barrels or cylinders of the windlass

FIG. 2.



may be used at pleasure. 3d. The combination of horizontal capstans with the axle of the windlass, to be operated along with it, or not, as may be desired. A A, are the decks of the vessel, the windlass on the lower, and the capstan on the upper. B, is the capstan. C, is a metal plate secured around the lower part of the capstan. D D, are lever rods, which have shoulders that rest on the edge of the ring E. Therefore when the capstan is driven round, the inclines on C, will give the levers D, an up and down motion. E, is a pall on the capstan. It catches into the usual fixed ratchet ring F, to keep the capstan from turning back. K K, are the two barrels of the windlass. They are made to be thrown in and out of gear, with the fixed section of the windlass, which extends from I I, occupying the middle part. The windlass has an iron axle R R, passing through the interior of it. The inside section is firmly fixed to it, while the barrels K K, are made to revolve on it, except when coupled with the fast section. This is very convenient for using one or both barrels as may be required. The way the barrel K, and the fast section are coupled, is by a band and clutch pall, regulated by set screws J J. This coupling is not shown, but it will be readily comprehended. By screwing down J J, the barrel is coupled, and by unscrewing, it is uncoupled. There is a ratchet wheel H H, on each side of the central bearing. Into these ratchet wheels two fixed palls project to retain the barrel of the windlass during the back stroke. Fig. 2 shows the way the lever rods D, move the windlass.—The rod D, is connected with two jaws G, that clasp by screws loosely round the windlass, which has a ratchet wheel S, on it. The jaws have a pall which catches into the ratchet wheel S, and when the rod D, is raised, the pall is the end of the lever which acts upon the windlass to turn it round. When a stroke of D is made, the pall passes over the teeth, to take another catch, and so on continually, as the lever rods D, are raised up and depressed by the inclines on the capstan. M, are two horizontal capstans on the axle R, of the windlass. They are loose on the axle, but can be coupled by a coupling pin at the outer end or not, as desired. At the right hand fig. 1, there is a pinion O, above, which works in bearings in the post, and which meshes into a cogwheel N, on the capstan.—The crank handle P, in this manner drives the capstan. This arrangement is not shown at the left, and the crank is not on the handle, but the whole will be easily understood by almost any person.

Canada Woolens.

The Ontario Woolen Mills Cobourg, Upper Canada, wove and finished nearly 60,000 yard of Cloths during the last six months. The year's work will be 140,000 yards. Last year Mr. Mackechnie, the proprietor, finished of clothes, tweeds, satinets and flannels, 100,538 yards. Such establishments as these are a powerful element of real independence.

Yankee Reasoning.

A schoolmaster, who had an inveterate habit of talking to himself when alone, was asked by a neighbor what motive he could have in talking to himself. Jonathan replied that he had two good and substantial reasons : in the first place, he liked to talk to a sensible man ; in the next place, he liked to here a man of sense talk.

RAILROAD NEWS.

Railroads in the United States and England.

If we desire, says Lyell in his recent work, to form an estimate of the relative accommodation, advantages, comforts and cost of the journey in one of these (American) railways as compared with those of England, we must begin by supposing all our first, second and third class passengers thrown into one set of carriages, and we shall then be astonished at the ease and style with which the millions travel in the United States. The charge for the distance of fifty four miles, from Boston to Portsmouth, was $1,50 each, or 6s. 4d. English, which was just half what we paid three weeks before for first class places on our journey from London to Liverpool (£2 10s for 210 miles,) the speed being in both cases the same. Here there is a want of privacy enjoyed on an English first class carriage, and the seats though excellent, are less luxurious. On the other hand, the power of standing upright when tired of a sitting posture, is no. to be despised, especially on a long journey, and the open view right and left from a whole line of windows is no small gain. But when we come to the British second and third class vehicles, cushionless, dark, and if it happen to rain, sometimes closed up with wooden shutters, and contrast them with the cars of Massachusetts, and still more the average appearance, dress, and manners of the inmates, the wide difference is indeed remarkable ; at the same time the price which the humblest class here can afford to pay, proves how much higher must be the standard of wages than with us.

Progress of Telegraph Lines.

The new line between this city and Boston, to be used with House's Printing Instrument is completed, and last week communication was had between Boston and Hartford through Providence, and between Hartford and New York. Probably to day direct communication between this City and Boston will be had. The line will not be open for business for several days yet. Mr. Downing has pushed this line through with great energy and against many discouragements.

The wire of House's line between New York and Philadelphia will be again established across the river about the 1st of August.

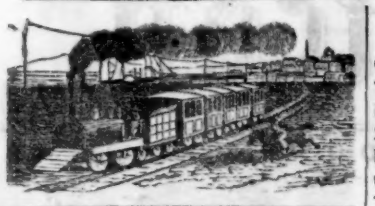
Bain's line between New York and Boston will be in working order in about six weeks. The wire is going up rapidly. Their office in Wall street, is splendidly fitted up. The link between Philadelphia and New York will be filled up during the Fall.

Both Bain's and House's lines between New York and Buffalo are progressing but not very rapidly. Bain has about a hundred miles nearly completed on the West bank of the Hudson, from Newburg northwardly.

A new Morse line is nearly completed from the Lake to Cincinnati, which will unite with the New York and Erie line, and give another connection with St. Louis, at lower rates than are charged by the old lines.

Great Canal Project.

A movement has been set on foot at Troy, New York, which has for its object the construction of a work to be called the Champlain Ship Canal. This work, it is expected, will lead to the enlargement of the canal from Whitehall to Troy, when ships and propellers carrying 3,500 bbls. of flour will be enabled to load at Chicago or any of the lake ports direct for New York or Liverpool. When accomplished, this will be a practical realization of Clinton's original idea of uniting the Hudson with the Lakes in such a manner as to avoid the necessity of breaking bulk or transhipment.



The Cholera in New York.

The Reports of the Cholera published from day to day in this city, have been so different from the weekly Reports of our city Inspector that we have concluded not to publish them any more, for no dependence whatever can be placed in them. The Report of the City Inspector makes out the number of deaths to be much larger than the Board of Health Reports. In the last week's Reports there are 57 of a decrease as compared with the preceding week. The whole number of deaths last week was 1352 : of these 692 were from Cholera. More natives of Ireland died than Americans ; in fact one half of the deaths by Cholera are Irish and of the total number of deaths in the city about one third were natives of Ireland. Misery and suffering appear to be the lot of the natives of Ireland.

Lightning Conductors,

In answer to a correspondent, we would say, with respect to lightning conductors, there can be no fears in the correctness of their construction, if they are made continuous,– that is, the rod must be perfectly connected from the point to the ground—leading into a well or some moist part of the earth. Have the rod perfectly isolated from the house. Glass is the best isolator, but there are cheaper non-conductors. The larger the rod, all the better. The point should be platinized or silvered.—The height above a building to which a conductor should project is not truly established, but to persons who do not question the expense, we say, raise the rod high, have it of a good diameter, and be sure to have it perfectly joined together. From what we know about electricity, the utmost care must be exercised in connecting the parts of the rod, for a jet of gas has been inflamed when brought near metallic bodies to which the wire from the battery was connected.

Looking Glasses against Cannons.

A Mr. Bennet of this city, in a letter to the President of France, says that a force of 4000 men, armed each with a true plane mirror of twenty inches square, can destroy an army of 100,000 men, at the distance of 500 yards, in less time than he is writing his letter.

He says the power of a single mirror, as ascertained by experiment, at the distance named, is about one fortieth of the direct rays of the sun. He infers therefore that 4000 mirrors will multiply the power of one so many times, and will consequently be equal to 100 times the sun's heat on the earth. This will make a heat equal to the welding heat of iron or 12 times hotter than red hot iron. If the mirrors were cast on a parabolic table, each forming a spectrum or focus of 32 20 inches, at the distance of 500 yards, their concentrated power at 500 yards beyond the focus (or 1000 yards,) would destroy an army.

Where is Captain Bobadil ?

Horse Shoes fixed on without Nails.

London papers state that a Mr. William Parry has lately patented a new method which consists of the common fulled shoe, fastened on by means of iron wire staples—that have undergone the process of annealing—introduced into the wall of the hoof, through holes bored into it, taking nearly the same direction and course that the nails do. The staples are turned downwards, so that their ends emerge within the canal of the fullering, where by means of pliers, they are brought into contact and twisted together, and the twist afterwards turned and beaten down snugly within the canal. The deeper the fullering therefore, the better. The staples are introduced on either side, and the number, as in the use of nails, being left to the judgment of the practitioner.

A small worm (cysturcus) was recently taken from the eye of a girl 16 years of age, in the city of Glasgow. There are only four similar cases on record.

A Holland Windmill in the West.

There is a flourishing Holland Colony in Ottawa county Michigan, named Zealand.—They are a strictly temperance community, industrious, good citizens and emigrated from Zealand, Fresland and other provinces of Holland. They have engaged an American school teacher, and are fast becoming Americanized. The Grand River Eagle thus describes their milling facilities :

" One of the greatest curiosities in the colony is the great, awkward and unmanageable concern called the Windmill. This is a monstrous wooden pile in the form of an octagon tower, large at the base and drawing to a small compass at the top. It is built of hewn timbers, framed and is about sixty feet in height. The machinery is of wood, including the gudgeons of the wheel shafts, which are about six or eight inches in diameter, and covered with thin straps of iron. There are two saw frames ; one having nine, and the other six saws.

The saws are placed as far apart as they intend to make the thickness of the stuff, and the log is sawed up by one passage of the saws through it, from one end to the other, and the boards left with rough edges. The saws are thin and narrow, and very nearly follow the grain of the timber. The mill is moved by the force of the wind striking against four winding slats, or flappers, covered with canvass, and attached in the centre to a horizontal shaft. They were sawing, or attempting to saw while I was there. Occasionally the saws would strike a few minutes quite lively, then draw a few slower strokes and then entirely stop, perhaps to start again in half an hour. With a fair wind, they can saw a little, but in a lively gale it is necessary to chain it up. An enterprising individual is now putting up a steam sawmill, which will do a better business."

A Curious work of Nature.

One of the most remarkable curiosities in the vicinity of Mobile, is what is called the " Thundering Spring," about twelve miles from the city. The country is considerably elevated above the level of the river, and is mainly of a sandy formation The Spring, or rather its embuochure, is apparently about 3 or 4 feet in diameter and the fluid has an uncertain motion, like the ebullitions on the surface of boiling water—throwing up with it a pure white sand. The remarkable characteristics of it are a low rumbling irregular noise, exactly like distant thunder, and a tremulous or nervous motion of the earth, which is also irregular. The ground for many yards in the vicinity of the Spring is constantly shaking in this way, leaving an impression of insecurity and extensive hollows beneath the surface. The water issues from the side of the declivity, which presents the appearance for some distance, of being several feet below the original surface. The volume of water that issues from it is not so great as one would suppose, without examining the stream as it runs off. This deception originates in the paroxysms of the spring, which casts up huge bubbles, mixed with sand, that fall back in the basin, without being carried off.

Hunting for Sunken Treasures.

Some young men from Boston recently took it into their heads to pass their summer vacation in testing the availability of a new submarine apparatus by visiting the spot where his Majesty's brig Plumper was lost in 1812, and searching for some of the dollars and doubloons lost on that occasion. The spot lies between Dipper harbor and Point Lepran, about forty four miles from Eastport, Maine, in a northeasterly direction, at the foot of an almost perpendicular cliff, some 70 or 80 feet in height, and where the depth of the water is about 60 feet. The operating party use an apparatus of India-Rubber on the plan of Taylor's submarine armor. The diver is supplied with air by tubes, into which it is forced by an engine. Nearly $2,000 have been recovered by this enterprising party ; some in gold, but the greater part in silver. The amount of specie lost in the Plumper was £74.000.

A preliminary Manufacturers' Convention for the State of Georgia, is to be held at Stone Mountain on the 15th day of August.

Use of Breakfast to the Bilious.

A certain amount of bilious congestion seems to be natural in the morning. That the bile is periodical stored up, might be inferred from the anatomical structure of the liver, which has not only its system of ducts, but also a gall-bladder to hold that fluid until it is wanted ; experimental research moreover has shown that little bile escapes into the duodenum except during digestion. For four or five hours, therefore after eating, the liver is slowly drained of its bile ; but when digestion is finished, the flow stops, and the liver gathers up a supply against the next repast. Hence it is after fasting that the liver is most fully charged with bile ; and as the period of longest abstinence is between the evening meal and breakfast it follows that there will always be towards morning a natural accumulation of bile, which any of the causes already mentioned may convert into engorgement. * * Hence many who are bilious in the morning feel themselves relieved after breakfast ; in other words after some bile has been drained from the congested liver. Acting on this, we have often recommended a light supper to prevent morning biliousness, and sometimes with success. It keeps the bile flowing during a part at least of the night, and thus shortens the period of accumulation.

An American Doctress in France.

The medical community of Paris has been set a talking by the arrival in the city of the celebrated American doctress, Miss Blackwell. The lady has quite bewildered the learned faculty by her diploma, all in due form, authorizing her to dose and bleed and amputate with the best of them. Some of them are certain that Miss Blackwell is a socialist of the most furious class and that her undertaking is the entering wedge to a systematic attack on society by the fair sex. Others who have seen her say that there is nothing very alarming in her manner ; that on the contrary, she appears modest and unassuming and talks reasonably on other subjects. She is young, and rather good looking ; her manner indicates great energy of character ; and she seems to have entered on her singular career from motives of duty and encouraged by respectable ladies at Cincinnati. After about ten days' hesitation on the part of the directors of the hospital of Maternity, she has at last received permission to enter that institution as a pupil.

Thieving in Russia.

St. Petersburgh contains the cleverest race of thieves in the world The fact is acknowledged. An officer being warned that robberies were committed in the steamers on their departure for foreign countries, carefully kept his hands in his pockets while chattering with a friend of whom he came to take leave ; the bell rung, he embraced his friend, and immediately put his hands into his pockets, but found them empty. Another laid his eye-glass on the counter of a theatre refreshing room and watched it very attentively ; but, when he raised a tumbler to his lips, the eye-glass vanished. Cheating indeed is carried to such excess in Russia, that one might be tempted to say it is in the air or blood. Russian commerce and manufactures are unquestionably the most dishonest in the world ; China and England have had equal reason to complain of it. The Chinese, who are to suspicious to receive, without examination, the rolls of Russian cloth, find pieces of wood inside ; the English receive grease instead of tallow.

To Wash a White Lace Veil.

Put the veil into a lather of white soap and very clear water, and let it simmer slowly a quarter of an hour. Take it out and squeeze it well, but be sure not to rub it. Rinse it in two cold waters, with a drop or two of liquid blue in the last. Have ready some very clear and weak gum arabic water, or some thin starch or rice water. Pass the veil through it and clear it by clapping. Then stretch it out even, and pin it to dry on a linen cloth, making the edge as straight as possible ; opening out all the scollops, and fastening each with some pins. When dry, lay a piece of thin muslin smoothly over it, and iron it on the wrong side.

This for a linen veil not a silk one, as soap makes the silk quite yellow.

Wonderful Preservation.

The following instance of wonderful preservation, is from the Macon (Ga.) Telegraph, of the 18th inst :—

" During the severe thunder storm on Sunday afternoon last, the wife of Major Henry Wood, who resides about half a mile from the city on the Houston Road, experienced a most remarkable and providential escape. She was standing in the garden, near the house, having on her person at the time a gold watch, with a gold guard chain which passed around the neck. The electric fluid struck the chain melting it entirely. From the chain it passed through the watch, partially destroying it.—Thence it escaped down her clothing, doing no further damages until it reached the shoes which were literally torn to pieces. Mrs. Wood was of course, knocked senseless at the time but under the usual remedies, soon after partially recovered, and is doing well. She was severely scorched around the neck, immediately where the chain rested and was also injured in one of her feet ; but in other respects escaped unhurt. We mention particulars in this case, as it is unquestionably more remarkable than any we have ever seen upon record."

Hot House Fruits.

The Boston Transcript says that a Mr. Allen of Salem, Mass. has a fig tree that is a great curiosity. It fills the entire back wall of one house, and is trained in the same way as the peach, the branches stretching right and left from the trunk some thirty or forty feet, and is very vigorous. The variety is the the black fig of St. Michael. It is now in fruit with the third crop for the season. Upwards of 3,000 figs, by count, have been gathered the present season, and it is still yielding its delicious fruit in abundance.—When fully ripe this fig bursts with its own richness. The fruit is fine, and a good variety for forcing. There are several other varieties of figs growing in the house, but none so prolific as the St. Michael.

" The growing of fruit under glass is quite extensive in Massachusetts, and a vast amount of wealth is invested in this delightful branch of industry. There is probably more fruit grown in this way in Massachusetts than in all the other States of the Union, and there is a ready demand for all that is grown. Our cultivators frequently have orders from the South and West Indies for grapes, which command a high price."

African Grasshoppers.

At a recent sitting of the French Academy, a very interesting paper on the subject of the crickets or grasshoppers of Algiers was read. Both man, and the plants used as food, find in these insects a most destructive enemy. It appears that in the year 1814, two species of grasshoppers committed great depredations on the corn plants, and materially affected the health of the inhabitants. The first arrived in Algiers on the 10th of April, the second in July ; after having deposited their eggs, they died. Two or three weeks after the progeny burst into existence, and speedily devoured the whole of the surrounding vegetation.—Their larva were carried into the interior, and they gradually disappeared.

The Benefit of being jilted.

A Malta correspondent of the London Times tells the following story of the Pope : " When in his youth and in the Guardia Mobile at Rome, he fell deeply in love with a beautiful English girl. She refused his suit, although handsome, young and noble, on account of the difference of religion. He took the matter so much to heart that he retired to a convent, became an ecclesiastic, and eventually Pope."—*N. Y. Express.*

[Instead of this being a benefit to Pius Nine, it was a great misfortune. We like the old Scotch Deacon's prayer, " oh Lord dinna mak thy servant a King."

Silk in Louisiana.

The editors of the St. James Messenger have seen a specimen of silk, raised and reeled in St. James Parish. Although roughly reeled it looked very well. The Messenger expresses the opinion that silk culture will soon become an important branch of industry in that State.

Motion.

BY B F. STICKNEY.

No. 5.

Motion ! Motion ' That the Author of all existence has displayed his creative and sustaining power in motion ; in the animal, vegetable and fossil kingdom, is every where present to our view ; and in nothing so manifest as in the motion produced by chemical affinity. We observe attraction and repulsion analysis and synthesis :—the revolution of all bodies—the laws of motion are established by the Great Universal Chemist, and all organizations and disorganizations ; and it is demonstrable that even mind, is but the result of a certain organization of matter, dependant on motion. By removing the skull over certain portions of the brain, by the pressure of the finger upon the brain, all thought is suspenpended ; by the same pressure on other parts, memory only is suspended—others the power of speech only. And when the pressure is removed, the brain again performs its office.

We have become partially acquainted with some of these chemical laws, by which we have pursued an enquiry concerning the air we breathe, the water we drink, our common aliment, and the various matters and things used as remedies in case of disease.

The common air surrounding us, we know to be composed principally of the elements of Nitrogen and Oxygen, and very generally a small portion of Carbon and Hydrogen. We know that carbonic acid gas is a non-conductor, and repellant of electricity, (the universal invisible fluid) and if taken into the lungs in any portion, it paralyses all the animal functions ; and in a certain quantity destroys animal life. This gas may not only be taken into the alimentary canal with impunity, but it is highly exhilerating, as in the case of fermented liquors. The carbonic acid gas is the heaviest of the gases ; and hydrogen is the lightest ; they have a great affinity for each other ; and when combined, the levity of the compound is in proportion of the latter. This mixture produces a milder class of diseases than the carbonic acid gas without the hydrogen.

The mode of operation (as we conceive) is, that when this heaviest gas is present in the atmosphere, with little or no hydrogen, the animal functions are deranged and weakened and of course the digestive organs are diminished in their force. Therefore an article of food that might have been digested with ease in a better state of the atmosphere, now becomes impracticable : nor can so large a quantity of any kind of food be digested, as in a better state of the atmosphere.

The chemists recognize three stages of fermentation. The fermentative, aciduitous, and putrifactive. In the course of digestion the first is necessary to perfect it. It is at this stage that the chyle is formed. If the food has been of a proper kind, and not in too large quantity, the acid process will not have taken place in any degree, and good healthy chyle is formed, and the rest of the process, necessary to nourishment, proceeds perfectly. If the food is of improper quality, or too large in quantity, for the digestive organs, acid is formed. And if this is habitually continued, the organs are weakened, and disease ensues. And probably in the first instance, of a mild type, but in case of great excess in quantity or quality, and too much carbonic acid gas present, to diminish the force of the vital fluid, the putrifactive process is sure to follow ; and the Cholera asphyxia is likely to be the disease produced, unless some suitable antidote is thrown in, to saturate the septic acid, and thereby arrest the progress of the disease.

In describing the above as a common routine of diseases, often terminating in Cholera, we do not mean to say, this is the only routine leading to cholera. We conceive that the most perfect cases of Cholera asyhyxia, are those produced by being immersed in carbonic acid gas as in deep wells or caverns. We have had a number of those cases, and in 1834 we saw many where the Cholera was epidemical that were very similar. We have seen Cholera asyhyxia by eating animal food that had commenced the process of putrid fermentation. Perhaps there is no article of food more likely to produce this effect, than oysters in this state. This was shown by the experiments of Dr Beaumont, on digestion.

As the result of our experience, we conceive that in all those cases, that alkaline carbonates in liberal doses, with the most severe friction on the surface, with stimulants, (electric applications if possible) are the most reliable preventatives, and means of cure of Cholera.

Bakewell's Copying Electro Telegraph.

In looking over the specification of the patent for this Telegraph, which has jusi been published in the London Patent Journal, and which has been trumpetted up by some of the London papers, and copied into some of ours, we have thought it best to give a short description of it, to show what it is.

" The writing materials consist of tin foil, varnish, and a quill pen. The letter thus written is applied to a cylinder ; a metal style or point presses on the writing as the cylinder revolves ; and the point being attached to a screw, it moves gradually along from one end of a cylinder to the other. The thread of the screw is sufficiently fine for the point to traverse six or seven times over each line of writing before it passes by the revolution of the cylinder to the next. The point is connected with one pole of a voltaic battery and the cylinder is connected with the other pole, so that the electric current may pass from the former to the latter ; but as varnish is a non-conductor of electricity, the circuit is interrupted whenever the point presses on the varnish writing. The distant telegraphic instrument is an exact counterpart of the one that transmits ; but in place of the tin foil, paper moistened with a solution readily decomposed by electricity is applied to the cylinder. Thus the electric current transmitted through the ordinary telegraph wires is made to pass from the metal points to the cylinders of the two instruments, through the interposed moistened paper on one, and the tin foil on the o her. When the metal point of the transmitting instrument is pressing on the paper on the bare tin foil, the electric current is completed through the paper on the distant cylinder, and by the decomposition of the solution a mark is made ; when the point is pressing on the varnish, the circuit is interrupted and the marking ceases. In this manner, the point of the transmitting instrument, by passing several times over each line in different parts from the top to the bottom, produces an exact copy of the form of the letters ; the writing appearing pale colored on a dark blue ground, consisting of numerous lines made spirally round the cylinder."

[Now there is not a single person in this city, who saw Mr. Baiu's Copying Telegraph when it was exhibited here last year, but will at once perceive that Mr. Bakewell's is one and the same thing, and we cannot but look upon the Bakewell Telegraph in any other light than a purloined invention.

Chapter on Locusts.

The following chapter from the Phila. Sun, will be read with great interest by many of our readers.

The common locusts have commenced their annual visit to this city, at least. The public squares were vocal with the songs of these mysterious insects yesterday, more so than on any day previous since the summer commenced. Some people have an idea that these locusts always appear with an epidemic ; they set them down as " Pharoh's," and, of course, must accompany an Egyptian plague. Whilst ruralizing in Washington Square yesterday, we luckily chanced to meet with the " oldest inhabitant," a wintry wreathed gentleman, so far advanced in years that he could not remember the precise time when he made his appearance on this mundane sphere.

He gave us a lengthy dissertation on the different kinds of locusts, and their singularly migratory habits, the most of which we think can be condensed into a nutshell.

That tribe of locusts commonly called " Pharoh's locusts" have appeared regularly in this city, so he says, on the 25th of May every seventeen years, and what is more singular, they appear the year after a visitation of some kind of disease, epidemic in its character.

The old gentleman above alluded to, says that Pharoh's locusts, are much smaller than the locusts now in this city ; besides this they are of a reddish brown, and the present ones are black.

The tribe bearing the name of the ancient king of Egypt, appeared in this city as follows :

May 25th,	-	-	-	1765.
May 25th,	-	-	-	1782.
May 25th,	-	-	-	1799.
May 25th,	-	-	-	1816.
May 25th,	-	-	-	1833.

During the year previous to each of the above periods our city was visited by yellow and other fevers, and cholera. There is a singularity about the whole affair, that seems somewhat surprising. According to the above statistics, we may expect Pharoh locusts to arrive here on the 25th of May, 1850, as they have in the five instances above enumerated, succeeded a year of an epidemic visitation.—We well remember the locusts of 1833, having gathered a hat full of them in Independence Square. They hung from the branches of the trees like bunches of grapes on the vine, or like so many bees hiving in the forests. They appeared, as if by magic, and their disappearance was equally wonderful.—Whilst they were at their height, there came up a tredemdous storm, the wind blew as hard as a West India hurricane, and myriads of swarms of the tribe of " Pharoah" were blown, many of them to parts unknown, like so many musquitoes. The wagon ruts along the roads leading to the city were soon filled with the locusts, and vehicles arriving in town had some hundreds of the crushed particles of the insects on the tires of the wheels. There are, doubtless, many persons in our city who remember the visitation of the locusts and the attending circumstances.

Alligators Boarded and Lodged.

The following is a strange account of a lake full of Alligators in the East Indies, taken from the Anglo Indian Paper.

We made an excursion lately, to what is here called the Muggar Tank, a lake of alligators, which lies in a small and beautifully situated grove of trees, surrounded by a range of low hills, about nine miles from Kurrachee. After having breakfasted, we proceeded to the spot where these hideous monsters were congregated. They are held sacred by the natives of the country, and are regularly fed by by the contributions of devotees. The tank is more like an overflown meadow than a lake, having deep channels intersecting each other, and is literally alive with these huge " muggers," some basking on the knolls and ridges, others floating on the surface of the deeper water. They were of all sizes, from a foot or two to twenty or twenty-five feet in length, and bulky in proportion. Having purchased a kid, and cut it up on the banks, there was a universal opening of their capacious jaws, which they kept distended in expectation of having a piece of flesh thrown in them, and are too lazy to make any further demonstration ; the native keeper who feeds them, then began calling to them, when they came one by one lazily along, and waddling on to the shore, each took what was given to him. The rapidity with which the poor kid vanished, head and heels, was truly astonishing. They know the keeper quite well, and if any one should take up what is not thrown to him, the keeper makes him drop it by striking him over the snout with his stick. Their jaws are certainly dreadful clap-traps, and the crash they make when brought together is horrible, crushing the bones even of the head of their prey, like so much crush. It is probable, setting aside motives of superstition, that the inhabitants now find it necessary to feed these voracious monsters, for, were the supplies to be stopped, they would become dangerous neighbors. In fact, they do at times pick up and devour a stray child left on the banks by accident or design. There are here three hot springs, one of which supplies the tank, and is of a temperature of about sixty-six degrees. The two others have a temperature of one hundred and eighty degrees. The water issues from the rock as pure as a crystal, and in great abundance.

The juice of the young sprouts of white pine, is said to be good for heaves in horses.

Cholera Prescriptions and Opinions.

Professor Olmstead, of Yale College, does not believe that there has been any electric change in the atmosphere during the prevalence of the cholera, any more than during any other period of the year. Professor L. C. Beck, of Rutger's College, in a communication to the Newark, N. J. Sentinel, expresses the same opinion as Prof. Olmstead. He says, " The only fact of interest which to my knowledge has heretofore been made known, is that recorded by Dr. Prout, the celebrated English chemist, so distinguished by his analytical investigations. In an extensive series of experiments on atmospheric air which he conducted in London from the 16th of December, 1831, to the 24th of March, 1832, it was observed that on the 9th of February, the weight of air increased, and during the whole time that the experiments were subsequently continued, the air almost uniformly possessed a weight above the usual standard. The apparatus employed, and the care taken, were the same throughout, and there seemed to be no doubt about the difference, whatever it depended on, really existed, and did not arise from error of experiment. ' How the circumstance is to be explained,' says Dr. Prout, ' it is difficult to form a conjecture ; but perhaps it may be worth while to observe, that almost precisely at the period above mentioned, the wind veered round to the north east, where it continued for a considerable time, and that under these circumstances the epidemic cholera first made its appearance in London. It would seem, therefore, as if some heavy foreign body had been diffused through the lower regions of the atmosphere about this period and which was somehow or other connected with the disease in question ' These observations, though curious, have led to no definite views in regard to the connection between epidemic diseases and the peculiar state of the atmosphere. Berzelius and others have suggested that some compound of selenium may be occasionally present in the air, so as to cause epidemics."

We would call attention to the article of Mr. Stickney, in another column, on this subject. Professor Andraud, of Paris, believes that there has been an absence of electricity in the atmosphere during the prevalence of cholera in that city, and he attributes to this cause, the disease of cholera in that city — How very different the opinions of men are on this subject.

RECIPE FOR THE CURE OF CHOLERINE.

Take equal parts of—

Tincture of Laudanum,
" " of Cayenne Pepper, of treble strength,
" " of Rhubarb,
" Eessence of Peppermint, treble strengh,
" Spirits of Camphor.

Mix in a bottle ; dose from 5 to 30 drops, according to violence of symptoms. To be repeated every 10 or 15 minutes if needed.—*N. Y. Sun.*

Take of camphor water, 4 table spoonsful,
" Acitated Tincture of Opium, 1 tea spoonful,
" Aromatic Spirit of Ammonia, 2 tea spoonsful.

Mix them. In urgent cases, let one tea spoonful be given every 15 or 20 minutes ; in milder cases, 1 tea spoonful may be given every hour or two. The dose in urgent cases may be increased to one table spoonful every 15 or 30 minutes, according to the violence of the disease.

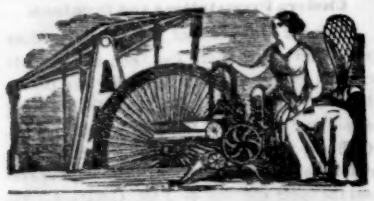
Chalk mixture,	: :	6½ ounces,
Tincture of Rhubarb,	:	½ "
" of Ginger,	:	2 "
" of Opium,	: :	2½ "
Aromatic Spirits of Ammonia,		½ "

Of the above make a mixture. A table spoonful to be taken every hour when required.—*Scientific American.*

CHOLERA MIXTURE.

Chalk mixture,	: :	12 ounces,
Tincture of Rhubarb,	:	½ "
" of Ginger,	: :	2 "
" of Opium,	: :	1 "
Aromatic Spirits of Ammonia,		½ "

Make a mixture—a table spoonful to be taken every hour when required.—*B. F. Stickney.*



New Inventions.

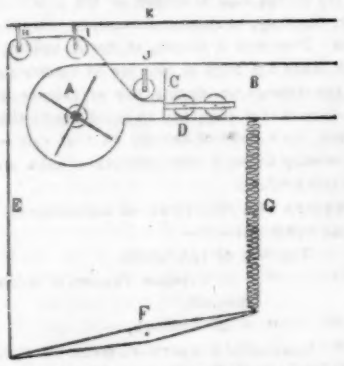
Improvement in Hanging Ship's Rudders.

Capt. Lorenzo D. Gallup of New London, Ct., has invented a most valuable improvement in combining a ship's rudder with a double anti-friction roller ring which takes the whole weight of the rudder off the pintles.—We have no doubt but with this improvement, a ship may be afloat for 20 years, without requiring her rudder repaired by exposure to ordinary tear and wear. Every nautical man who has seen it, has admired it. The inventor has taken measures to secure a patent, and we will say no more about it at present as we will publish an engraving of it at some future time not far distant, as we consider it to be one of the most valuable inventions ever brought before the public.

Z. Knapp's Improved Wire Fence.

Mr. Z. Knapp, of Pittston, Pa., has patented a Wire Fence of great simplicity—one which can be easily constructed by any person, and which can be erected at a very low price. His fence is stated to last twenty years without repair, and costs no more to put up in a wooded country than rail fence. Where the timber is scarce they will cost but half the price, as any small timber can be used for posts. One ton of wire No. 11, at $6 per cwt. will make 400 perches of 8 strand fence, at the cost of 35 cents per perch. One ton of wire No. 14, will make 1000 perches, at 14 cents per perch, of 8 strand fence—the prices varying according to the size of the wire.

Allen's Improved Regulator.



This Regulator was invented by Henry Allen, of Brattleboro', Vt., and patented August 22, 1848. It consists in using a fan or wind wheel (see letter A. in the above cut,) which being geered or attached to any shaft, the motion of which is to be regulated, shall produce in a conduit or passage B, a current of air.—This current of air is increased when the motion is accelerated, and blows further along the passage or conduit against a screw C, attached to a carriage D, which runs freely on ways. To this screw is attached a cord E, which acts on a beam F, to the axis of which is also attached the gate which lets on or shuts off the steam or water. At the other end of the beam is attached a spiral spring G, made fast at the top, which acts as a counterpoise in an opposite direction, so that an increased motion of the shaft shuts off the power, but when the motion flags, the spring will prevail by contracting, and the carriage recede, the orifice of the gate be more opened, and power will be let on the machinery. H I J, are pulleys. K, is the beam or joist of the building. It will be seen that most of the apparatus is placed overhead. This has proved to have greatly the advantage over the balls which have so long been in use, particularly when the work is fluctuating, this has been proved by the patentee in the use of both. Every one knows that is acquainted with the centrifugal principle by which the balls act, that it requires a continued accelerated motion to keep the gate in a position to shut off steam or water, and they are too tardy in their operation. This improvement as a Governor is simple in its construction, and not liable to get out of repair, and comparatively cheap to any now in use. The patentee will sell his property in the improvement in whole or in part.

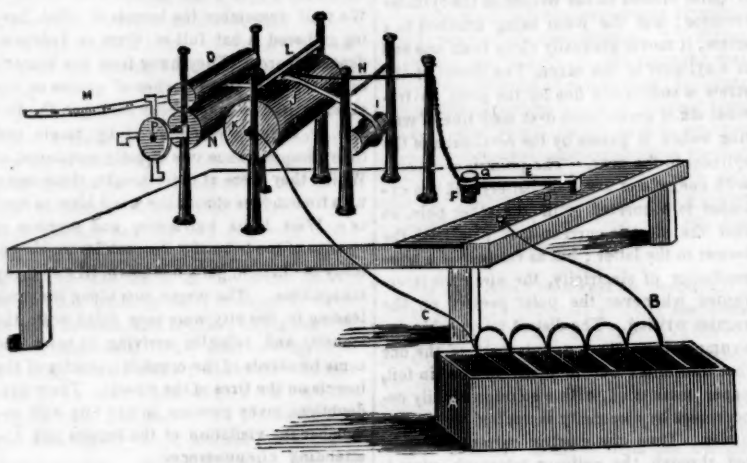
Electric Steam Indicator and Signal.

Mr. Arthur Dunn, an experienced English electrician, has made an ingenious application of electricity, by means of which signals are given that indicate the pressure of steam in the boiler of an engine. Tubes being filled with mercury are made part of a galvanic circuit,—and connected with the bells as the mercury rises from increasing pressure in the boiler; the circuit is thus completed and the bells respectively rung indicate the amount of pressure. In this way attention is called to the condition of the steam the moment it exceeds its ordinary and safe working condition.

New Reaper, Thresher and Separator.

The Memphis Enquirer notices a wheat-cutting machine invented by S. S. Rembert. The machine is drawn by a single horse, and cuts, threshes, fans and bags the wheat as the horse moves on, and this whether the ground be level and free from stumps or not. The machine only cuts off the heads of the wheat, leaving the straw to be plowed under. It is not stated what area of wheat land the machine will cut in a day. It is said to leave much less wheat for the gleaner than the wheat cradle. A patent has been applied for.

ELECTRO CHEMICAL TELEGRAPH.



This engraving does not represent any of the patented Electro Chemical Telegraph apparatus, but it embraces the principles of the patented machine of Mr. Bain. We have arranged the parts to elucidate the subject, in order that we might explain the principle and operation of this invention, in such a plain manner, that every body who reads may understand. We have been induced to do this, from the fact, that quite a number have spoken to us respecting its nature and operation, who said, that they did not comprehend its principles at all. A, is a galvanic battery. It is composed of alternate plates of copper and zinc. Weak sulphuric acid decomposes the zinc and generates the galvanic current. B, is the positive wire, and C, the negative. The positive is attached to the zinc, the negative to the copper. These two wires must be united in a circuit to operate the telegraph, but the circuit may be formed of any good conducting materials, such as metal or water. D, is a brass plate on the table. The wire B, is connected to it. E, is a metal key, with ivory top, for breaking and closing the circuit, to write the message. It is kept a little above the brass plate D, but is attached to an elastic spring F, at its head, to allow the key to be brought in contact with the brass. G, is the metallic head of the key. It is connected to a chain, from which a wire extends from the small post connecting it to the end of the writing pen H, which has an axle between the two posts. This pen rests, when writing, upon the message ribbon of paper, which will be observed around the roller I, and passing over the copper cylinder J. L, is a bar which slides up and down to keep the pen firm on the ribbon, and to allow the pen to be lifted up when required. The negative wire C, is connected by a joint to the arbor K, of the roller J. O N, are the two rolls that move the paper ribbon forward over the roller J. The lower roller N, is a hollow drum, with a barrel spring inside, which is screwed up by a key, on the outside of the axle in the way well known to every person who has looked inside of a watch, and which gives motion to N, when running down. P, is a small metal disc with fans on its periphery, which by being screwed into it, can be turned in any direction to regulate the speed of rollers, to move the ribbon quick or slow. There are various ways of moving these rolls. The paper ribbon to mark on, is prepared with a solution of the prussiate of potash, and it must be kept moist under the pen H, on the top of J.

Suppose that the rolls are moving the paper, and the pen resting on it on J, no mark will be made unless the key E, is in contact with the brass plate D, but whenever it is brought in contact with it, a blue mark is made on the paper, and when removed from the brass, a light space is left on the ribbon. Two quick connections make two blue dots, one long connection makes a dash, and dashes and dots variously combined form the telegraphic alphabet, as represented by the ribbon M. This is the most simple telegraph in existence.—Any person almost, from the above, could make and operate it, for an experiment at least. From experiment, we believe that no substance but the ferrocyanide of potash could be successfully used for electro chemical telegraphing. This is covered by Mr. Bain's first patent. The only point to be explained is the *why* and *wherefore* of the blue marks being made on the paper by the opening and closing of the circuit. The reason is this—Galvanism exhibits two distinct influences of operation. One by sending the current thro' a helix of wire wrapped round a U piece of soft iron, which thus forms the electro magnet, that has so great a mechanical power, that it will draw a piece of iron to it when the current is closed. Professor Morse has taken advantage of this power, by combining the electro magnet with a walking beam, which by closing and breaking the circuit by a key, vibrates the pen, one end of which is attached to the magnet, while the other end strikes the ribbon of paper and makes an indentation on it—thus writing the message, and forming his very beautiful electro magnet telegraph.

On the other hand galvanism has the quality of chemically decomposing substances, such as resolving water into its constituent gases.—Bain has taken advantage of this to use an iron pen resting on a moist surface of prepared paper, which when the current fleets along to the point of the pen a minute portion of the iron is decomposed on its point, which uniting with the prussiate of potash in the moist paper, forms a blue salt on the paper, known as the Prussian blue color. The messages which are sent along the chemical telegraph, are therefore *true blues*—the ribbons are dressed up in regular "Continental facings." We have now three different telegraphs in operation in the United States. Well they can all live and do well in this great country, which can't be fenced by one set of wires, nor tied down to one set of stakes.

Ira Avery's Wire Fence.

Mr. Ira Avery, of Tuckhannock, Pa., has sent us a sample of Wire Fence, which appears to be a good and useful invention. The principle of it consists in lacing pickets by wires, and securing them at the top by thin boards, or by crossing the pickets right and left and lacing them with wire where they intersect one another at top and bottom. From what information we have been able to gather respecting wire fences, a top belting of a thin board is the best. A gentleman residing but a few miles from this city, put up a wire fence between his house and the Sound, at the foot of his park, in order to get a better scene view. A stone wall was removed for this purpose, but it has again to be erected, for he lost two or three valuable horses, who looked upon the wire fence, as a bird when first caught, looks upon a window. It is our opinion that wire may be well applied to fence making.

New Flour Cleaner and Separator.

"The Wisconsin" of Milwaukie, notices in a flattering manner the new apparatus invented and constructed by Mr. E. R. Benton, millwright, for separating the coarse stuff in the Phœnix Mills in that city. The machine is in the form of an upright cylinder about four feet high and two feet across, within which are two revolving cylinders curiously fitted up with wire cloths of various fineness, perforated sheet iron plates, &c. &c. The bran is brought by an elevator to the top of the cylinder, which stands in the upper story of the mill, and passes through a shaking sieve, which throws out the large lumps that might clog the machine down among the revolving cylinders. A current of air is driven up from beneath into the centre of the cylinder inside the revolving part, and by the operation of this current of air and the revolving of the mechanism, the bran, shorts, and two kinds of flour are passed off into separate receivers. The coarser flour is passed back into the elevator to go through the machine again, and the fine passes down into the bolt. A hammer constantly raps on the top of the revolving sieves to keep them clear from being clogged up.

Preservation of Animal Matter.

At a meeting of the Asiatic Society, London, a human hand, and a piece of beef preserved by means of a preparation of vegetable tar, found on the borders of the Red Sea in the vicinity of Mocha and a specimen of the tar, were presented. Col. Hold, observed:—"During my residence as political agent, on the Red Sea, a conversation with some Bedouin Arabs, in the vicinity of Mocha, led me to suspect that the principal ingredient used by the ancient Egyptians in the formation of mummies, was nothing more than the vegetable tar of those countries, called by the Arabs Katran. My first trials were on fowls and legs of mutton; and which, though the month of July, and the thermometer ranging 94 in the shade, succeeded so much to my satisfaction that I forwarded some to England; and have now the pleasure to send for the Society's information and inspection, a human hand, prepared four years since by my brother Capt Thomas Bagnold. The best informed among the Arabs think that large quantities of camphor, myrrh, aloes and laankencense were used, these specimens will, however, prove that such were by no means necessary, as the tar, applied alone, penetrates and discolors the bone; tar is obtained from the branches of a small tree or shrub, exposed to a considerable degree of heat, and found in most parts of Syria and Arabia Felix."

Information to Inventors.

We understand, says the Boston Atlas, that the Commissioner of Patents deeming it, as a general policy, inexpedient to employ a private individual, as an agent for forwarding models to the Patient Office has requested the Collector of this port, Philip Greely, Jr., Esq., to act in that capacity in the place of R. H. Eddy, Esq., who has heretofore discharged the duties. Mr. Greely has accepted the the charge and all models, therefore, to be sent to the Department at Washington, must hereafter be desposited at the Custom House, from which they will be promptly despatched.

[If the Patent Office would order the agents to forward models more promptly, a favor would be done to Inventors.

NEW YORK, AUGUST 4, 1849.

Freedom in Europe.

At the present moment we behold the inhabitants of Europe engaged in desperate conflict to establish liberal institutions on the one hand, and to crush them on the other.—The people are struggling for their natural birthright, the despots are trying to crush them for daring to question the divine right of royal prerogative.

In reviewing the condition of the various races and nations of Europe, we are at once impressed with the spirit and bravery exhibited by those who have enjoyed the greatest amount of liberty. The fiery Hun long accustomed to considerable liberty, exhibits a lofty patriotism and great dignity of character, while the Russian, always denied the enjoyment of civil liberty, marches like a bloodhound at the bidding of his master The time was, when Caius Marius with a small but disciplined army of Romans, overthrew the immense hordes of invading barbarians. But such events cannot occur any more in Europe. Every nation there studies the art of war, and the strongest and most powerful, according to modern science, is sure to be victorious, right or wrong, in the end. Poland fought well for freedom, but the power of the tyrant broke the freeman's spear. Rome once dictated laws to the world, and Rome still stands, but where are her Senators who commanded Kings, and what are her citizens? Athens still stands, but where are her Athenians? The last news from Europe brought us word that the Gauls had entered Rome at the point of the bayonet. It is not the first time the Gauls have done this, but a Roman army may yet like Cæsar, pay the debt by passing the Rubicon, as of old. Rome is an evidence, that the Fine Arts may flourish under a despotism, but we will search in vain long for abject submission to tyrants, among a people devoted to the mechanic arts and manufactures, or among those where every family has a title to the soil.

Health of Cities.

As a general rule, when the body is examined after death, whether of a child or adult, one or more organs are found in a state of disease; a fact which induced a physician to state that he looked upon every adult he met in the streets of London as a walking museum of morbid anatomy. Out of 49,089 people who died in London in the year 1846, 22,275 were carried off before they reached the fifteenth year; and only 2241 died of old age, which Boerhave stated to be the only disease natural to man. In addition to this, it must be known that out of the number of deaths thus mentioned, 14,368 were from diseases of the organs of respiration, and the great source of these diseases was the respiration of impure air. One grand means to prevent such diseases, is to have well ventillated houses, and to keep the air in motion, for in warm weather the air always contains a large quantity of animal and vegetable matter in the form of the ova of infusoria and the seeds of the lower vegetable organisms. The act of breathing too, is a great cause of rendering the air impure. The air in the lungs is exposed to 170,000,000 of cells, having a surface equal to thirty times that of the body; so that during respiration the air is deprived of oxygen and becomes loaded with deadly carbonic acid gas, and is rendered totally unfit for a second respiration, being in reality no longer atmospheric air, but a poisonous gas. A second cause of the deterioration of the air, is the combustion of lamps, gas lights, candles, &c. A single candle is nearly as injurious to the air as a human being; two fourteen hole argand burners consume as much air as eleven men. A third source of atmospheric impurity is the vapor, loaded with animal matter, given off from the lungs and the skin; each of these parts pour out an ounce of fluid every hour; so that, in a church containing five hundred people, twelve gallons of noxious fluid are given off in two hours. A fourth source of bad air in towns is the large quantity of decomposing animal and vegetable matter left to give off its effluvia; and the difficulty there is in the renewal of the air in towns by means of the winds, on account of the vicious mode of their construction and their large size.

Certain diseases are traceable to the want of fresh air; such, as fever, consumption, scrofula, deafness, and that most fertile origin of numerous diseases, the common "cold." In England and Wales 120,000 people die annually of consumption, and the greater amount of cases, is among indoor laborers, and in the City of New York about 3,300 die of consumption per annum, most of these being confined within doors.

One grand means of promoting health would be the construction of better ventillated houses. No living, sleeping or working room, should contain less than 144 superficial feet, nor be less than eight feet high, and it should have one window at least opening at the top, also an open fire place to the chimney.

Fvery building in which gas is used should have plans to carry off the products of combustion, and not to allow them to escape in the room, and also to supply fresh air.

Diseases that arise from want of ventillation, are a scourge to society. Those who are merciful to animals, should not forget, that they need plenty of fresh air likewise. This we are sorry to say, is but little thought of by the majority; horses are housed most miserably, in our cities, and this is one great cause of a disease called the heaves, (the horse consumption.) The high rents for both dwelling houses among the poor, and for stables of our carmen, are no doubt the reasons of putting up with small apartments. What the remedy for this evil is, we are not able to divine, and a great and growing evil it is.

The Controversial Letter.

We have received a letter from Mr. P. J. Winckly, of Providence, R. I., respecting the inventions which have been noticed in our columns, communicated by Mr. G. W. Howard. There are some sentences in it quite irrelevent to the matter at issue, while there are others of too personal a nature to appear in the Scientific American. We will publish a short letter on the subject if Mr. Winckley sends it, but it must be on the subject of the alleged invention, and nothing else. We have nothing to do with personal remarks.

Worcester, Mass, County Mechanics Association.

The second exhibition of this excellent Institution will be opened on Tuesday, the 18th of September next. The association invites mechanics and artisans to exhibit specimens of their skill and ingenuity. Medals and diplomas will be awarded with the strictest impartiality, by a competent committee, and they can appoint a competent one, we assure all those who read this notice. This institution had an excellent exhibition last year, and no doubt they will have a better one this, as the people down there, fulfil the old age, "push along, keep moving."

Communications post paid, addressed to P. W. Taft, Superintendent, will meet with immediate attention.

Georgia Shoes.

The Savannah Georgian says: "We have received and placed in our reading-room, for the inspection of our friends a pair of negro brogans from a manufactory just started at Atlanta by the Messrs. Humphreys, and judging from the quality of the material, and the pair before us, we should not be surprised if Atlanta were soon to become to Georgia what Lynn is to Massachusetts,—a place where people can improve their understandings at a trifling cost. The Messrs. Humphreys, we learn, go into the shoe manufacturing with prospects that enable them to compete successfully with the manufacturers at the North. They intend to go largely into the business as soon as their arrangements are completed and will turn out this, the first year over 6000 pairs. They are also determined that they shall be real Georgian, made of Georgia hides tanned with Georgia bark, manufactured on Georgia soil, and even pegged with Georgia pegs—not such pegs as the Yankee sold in Virginia for seed oats, sharpened at both ends."

Paper Hangings for Walls.—Metallic Dust.

The invention of covering walls with ornamented paper, is claimed by the French, English and Germans. The most beautiful kind of paper for walls is the velvet and satin.—The printing of paper, is about the same as calico printing. Wooden blocks are most commonly used for printing on the patterns. and so much skill is exhibited in its manufacture, that some paper is made to adorn the walls of rooms, so as to give them the resemblance of every variety of marble; and sometimes they are studded with precious stones, almost to deceive a connoiseur's eye. Some halls are decorated with paper to represent groves, different kinds of architecture, sea scenes, and scenes of cities, courts and camps. Velvet or flock paper, is printed like the plain kind, but the parts to be covered are made wet with glue and some kinds of wooly substance of the colors desired, reduced to powder, is strewed over it, which by adhering to the glue, gives the paper the appearance of being partly covered with velvet. The shearings of fine white woolen cloth, dyed various colors, are generally employed for this purpose. The French velvet paper has the greatest character in America; although it is not likely that all which is sold for French paper, is made in France. The English claim the invention of velvet paper, and in fact they have good grounds for such a claim, as a patent was granted in London in 1732, to one Jerome Lanyard, for the "affixing of wool, silk and other material of divers colors upon linen cloth, silk, cotton, leather, and other substances, with oil, size and other cements to make them useful and serviceable for hangings and other occasions."

The French, however, say that this art was known in that country as early as 1620, and the name of the English patentee appears to be a foreign one, perhaps one of the Huguenots.

One very beautiful way of ornamenting paper, is to give it a metallic appearance, silvering it with pounded sand or glass and also giving it a metallic appearance of various colors, by using the metallic powders so well known, of every color, gold, silver, &c.

The inventor of metallic dust for ornamenting paper was a German artist at Nuremberg named John Hautsche. The metallic dust invented by Hautsche, is prepared by sifting the filings of different metals, washing them in a strong lye, then placing them on a plate of copper over a strong fire, stirring them continually till their color is altered. Those of tin, by this process acquire every shade of gold color with a metallic lustre, those of copper acquire various orange and red shades, those of steel become blue or violet, and those of bismuth and tin mixed, of a whitish color. The dust tinged in this way is afterwards passed between two hardened steel rollers the same as those used for silver and gold wire drawing. Instead of metallic dust for silvering paper, fine silver white mica is far better, and is generally used.

The patterns on paper are frequently printed in size and gilt leaf applied afterwards, or bisulphuret of tin is dusted over, so as to adhere to the pattern, and the velvet powder of flocks is applied in the same way. French chalk is the substance used to produce the peculiar gloss on paper named *satin* Various kinds of paper are now printed by machines, although it is not long since that all was done by hand block printing. One machine has been published in the Scientific American, and there are many other kinds. Paper printing, is now an important branch of American manufacture and trade, as there is no other people in the world who so universally employ paper for ornamenting the walls of their houses. A higher domestic taste is displayed among us than among any other people. There are but few families of the working people of Europe, who know the luxury of a papered ornamental parlor. We believe that domestic taste and comfort, is a good test of a nation's civilization, we know of no other to equal it.

Planing Machines.—Important Patent Case.

Last week on the 27th a very important patent case was disposed of by the U. S. Circuit Court, Phila. The case relates to the Woodworth Planing Machine, and will excite intense interest among a large portion of our citizens, until it is finally disposed of by a Jury. The Plaintiff was Mr. Wilson of Philadelphia, the defendant D. Barnum. The former is the assignee of the Woodworth machine, and the latter has a patent also. An engraving of Barnum's machine will be found in No. 18, this Vol. Sci. American. After the Patent was granted, Mr. Barnum set his machine in operation in the city of Philadelphia, when Mr. Wilson applied for an injunction against its use, "as being an infringement of the Woodworth Patent." This was in the month of May last. The defendant denied that it was an infringement, but a distinct invention, nevertheless an interlocutory injunction was granted by Judge Kane on the 31st of May, when the counsel for Mr. Barnum gave notice of an application for a Jury Trial, and demanded security for damages arising for the injunction on the result of the first trial.

On last Friday, Mr. Barnum received the decision of the Court, ordering a Jury trial to be set down for the 15th of next October, and Mr. Wilson to give $10,000 of security to the defendant to indemnify him against damages that may arise from the injunction.

This will be the most important patent case that has engaged attention for a number of years. The most eminent counsel are engaged on both sides. We have carefully perused the opinion expressed by Judge Kane on granting the injunction; we did not wish to say a word about it then, because we knew that this case was coming on, but we will comment upon his charge at some other time, all motives of true honor for Law and Justice, by the last decision, now allowing us free sea room for this purpose.

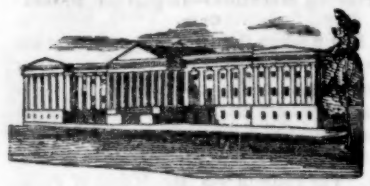
Bathing Rooms in the Factories at Manchester.

Two of the Manchester Corporations—the Amoskeag and the Stark—have done a considerate and generous thing for their girls, in fitting up bathing rooms for their exclusive use. Mr. Gillis, agent of the Amoskeag Corporation, began the movement. His rooms are fitted up with little expense—such as might be afforded by every corporation in New England—and still they are perfectly convenient. One is better pleased, however, with the appointments of the rooms on the Stark corporation, for there elegance is combined with convenience: the pleasent yard, the neat brick block, and green blinds, without; within, the papered walls, mirrors, dressing tables, the Venitian screens; and behind them, the dressing room; the bathing rooms, with their neatly kept baths, for showering or immersion, or for both, as one chooses; and then, further on, the long cool room, where is the plunge bath—where are plants; while moving here and there, wherever she is needed, is the quiet, kind lady who has the rooms, and all who come hither, in charge

The above is from the Lowell (Mass.) Offering, and is certainly a step in advance of any thing of the kind in the whole world.—As our government is superior to that of all others, so is our factory system, and the end is not yet. We believe that the advice of one of our correspondents in reference to shortening the hours of labor, should be adopted, and a convention of the manufacturers of our country held to concert measures for their own good, as well as the good of their operatives.

Overheated Horses.

During the recent hot weather, many horses have been lost. A distinguished veterinary surgeon of this City, says nine-tenths of them might have been saved, if a proper course of treatment had been adopted. He says nothing will do so well to restore a horse perishing from the effects of the heat as a little gin or brandy, with double the quantity of water added to it. A spoonful of this to be given every five minutes, until reaction takes place, when the animal will be in most cases restored, and able to walk to his stable in less than an hour.



LIST OF PATENTS.

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending July 24, 1849.

To Samuel Swett, of New York City, for improved Deflector for Spark Arresters. Patented July 24, 1849.

To A. N. Gray, of Cleveland, Ohio, for improved Whiffle-tree Hook. Patented July 24, 1849.

To Samuel S. Young, of Eaton, Ohio, for improvement in Calculating Machines. Patented July 24, 1849.

To Cornelius & Co. assignees of R. Cornelius and C. Wilhelm, of Philadelphia, Pa. for improvement in making Elevator Tubes for Lamp Wicks. Patented July 24, 1849.

To John Batchelder, of Boston, Mass., (as joint inventor with, and assignee of, S. D. Dyer, of Chelsea, Mass.) for improvement in Casting Types. Patented July 24, 1849.

To R. M. Springstead, of Wooster, Ohio, for improvement in Seed Planters. Patented July 24, 1849.

To Allen Eldred, of Little Falls, N Y. for improvement in Hill Side Ploughs. Patented July 24, 1849.

To Edwin B. Bowditch, of New Haven, Conn , for improvement in Sofa Bedsteads.—Patented July 24, 1849.

To Junius Foster, of Bridgeport, Conn., for improvement in connecting Hubs with Axles Patented July 24, 1849.

To Charles Downer, of Philadelphia, Pa., for improvement in Apparatus for unloading Carts, &c. Patented July 24, 1849.

To G. S. Langdon, of Rising Sun, Md. assignee of Patrick S. Devlan, of Reading, Pa. for improvement in Metallic Boot Heels. Patented July 24, 1849.

Self-Knowledge.

To know one's self, one would think, would be no very difficult lesson ;—for who, you will say, can be truly ignorant of himself and the true disposition of his own heart ? If a man thinks at all, he cannot be a stranger to what passes there ;—he must be conscious of his own thoughts—he must remember his past pursuits, and the true springs and motives which in general have directed the actions of his life ; he may hang out false colors and deceive the world, but how can a man deceive himself ? That a man can is evident because he daily does so. Though man is the only creature endowed with reflection, and consequently qualified to know the most of himself, yet so it happens that he generally knows the least. Of all the many revengeful covetous, false, and ill-natured persons whom we complain of in the world, though we all join in the cry against them, what man amongst us singles out himself as a criminal, or ever once takes into his head that he adds to the number ? What other man speaks so often and so vehemently against the vice of pride, sets the weakness of it in a more odious light, or is more hurt with it in another, than the proud man himself ? It is the same with the passionate, the designing, the ambitious, and some other common characters in life. Most of us are aware of, and pretend to detest, the barefaced instances of that hypocrisy by which men deceive others ; but few of us are upon our guard to see the more fatal hypocrisy by which we deceive and over-reach our own hearts.

Surnames.

Before the conquest, surnames were not used in England ; but the Normans adopted a second name by the way of distinction, and it usually expressed either some personal quality, as Rufus the Red, or indicated some post at court, or was the name of a family estate, in which last case "de" was prefixed.

[What a scholar the author of the above must be. He never read of the Aps of Wales or the Macs of the Celts—the first inhabitants of England.

For the Scientific American.

The History of Steam Navigation.

It is utterly impossible to enumerate the different modes of steamboat propulsion that have been brought before the public from time to time. Last year, a Mr. Simpson employed the fan blower, running horizontally to propel a steamboat on the river Thames in London.—It was highly spoken of at the time, but we heard no more about it since.

R. L. Stevens, Esq , of this city (New York) has now a steamboat running with currents of air forced backwards from the bow under the water, to give great buoyancy to the vessel and thus lessen her resistance in running through the water. What the final result will be, we are not able to tell, although we have no idea at present, that it will supersede the common mode, or that it is any advantage whatever.—No subject has received so much tinkering as this, yet what do we find, as the final result of 42 years experience in steam boat propellers ; just this, that the paddle wheel, firm and simply made, is the best of all propellers. In the pamphlet of Mr. Ewbank, the present Commissioner of Patents, paddles made of steel and of greater breadth of extremity (at the long end of the lever) are suggested, as having been demonstrated by him to be far superior to the common way of making paddles. The idea is a good one in our opinion, although as far as it respects metals, it is not new, as an English gentleman in 1842 constructed a paddle wheel with iron paddles.—But what shall we say of the invention of the steam boat ? time would fail us to tell all its benefits and describe all its wonders. Forty-two years ago, only one steam boat broke with her paddle wheels the surface of a single river of this vast continent, now, no less than 500 float on our Western waters alone, and many of these vessels are of great size and beauty. Around our own doors may be seen a multitude of these splendid leviathans of the deep —more worthy the name than a line of battle ship. The world is now circumnavigated by steam. The Atlantic ocean is traversed in a few days by splendid steam ships that have but to be seen to be praised. We may well ask "what is to be the end of these things."—We look upon every improvement in science and art, as a general benefit, and we look upon what steam navigation has done with a heart of faith and an eye of hope for the future, as a grand means of bringing about that period when "worth shall bear the gree" in every land. Navigation has done wonders for liberty and the elevation of man, if we take no more into consideration than the discovery of this continent. Four centuries have not yet passed away, since this continent presented upon the *maps of the World*, nothing but a wide rolling waste of waters. With the discovery of the *New World* a new era of freedom has dawned upon man.

With navigation on the swift footed steam boat crushing the waves beneath her iron feet and raising the spray behind her as the courser the dust on the race course, we know that the messages of freedom and of concord and of human sympathy, are borne to every land to cheer up the hearts of men who have long sat in darkness.

Sadness.

There is a mysterious feeling that frequently passes like a cloud, over the spirit. It comes upon the soul in the busy bustle of life in the social circle, in the calm and silent retreat of solitude, its power is alike supreme over the weak and lion-hearted. At one time it is caused by the flitting of a single thought across the mind. Again, a sound will come booming across the ocean of memory, gloomy and solemn as the death-knell, overshadowing all the bright hopes and sunny feelings of the heart. Who can describe it, and yet who has not felt its bewildering influence ? Still, it is a delicious sort of sorrow ; and like a cloud dimming the sunshine of a river, although casting a momentary shade of gloom, it enhances the beauty of returning brightness.

To make a sober man a drunkard, give him a wife who will scold him every time he comes home, then storm at her son Bill, kick Tom over the skillet, dab Ned over the mouth and then drive them all into the kitchen with a broomstick.

The Tea Plant.

There are but very few subjects connected with the vegetable kingdom which have attracted such a share of public notice as the tea-plant of China. Its cultivation on the Chinese hills, the particular species or variety of which produces the black and green teas of commerce, and the method of preparing the leaves, have always been objects of peculiar interest. The jealousy of the Chinese Government in former times prevented foreigners from visiting any of the districts where tea is cultivated ; and the information derived from the Chinese merchants, even scanty as it was, was not to be depended upon. And hence we find authors contradicting each other ; some asserting that the black and green teas are produced by the same variety, and that difference in color is the result of a different mode of preparation ; while others say that the black teas are produced from the plant called by botanists Thea Bohea, and the green from Thea virdis, both of which we have had for many years in gardens, but it has been found that the greater part of the black and green teas which are brought yearly from China to Europe and America are obtained from the same species of variety.

In the green tea districts of Chekiang, near Ningpo, the first crop of leaves is generally gathered about the middle of April. This consists of the young leaf-buds just as they begin to unfold, and forms a fine and delicate kind of young hyson, which is in high estimation by the natives, and is generally sent about in small quantities as presents to their friends. It is a scarce and expensive article, and the picking of the leaves in such a young state does considerable injury to the tea plantations. The summer rains, however, which fall copiously about this season moisten the earth and air ; and if the plants are young and vigorous, they soon push out fresh leaves. In a fortnight or three weeks from the time of the first picking, about the beginning of May, the shrubs are again covered with fresh leaves, and are ready for the second gathering, which is, in fact the most important of all. The third and last gathering, which takes place as soon as new leaves are formed, produces a very inferior kind of tea, which we believe is rarely sent out of the district. The mode of gathering and preparing the leaves of the tea plants is extremely simple. We have been so long accustomed to magnify and mystify everything relating to the Chinese, that in all their arts and manufacture, we expect to find some peculiar and out-of-the-way practice, when the fact is, that many operations in China are more simple in their character than in most other parts of the world. To rightly understand the process of rolling and drying leaves the grand object is to expel the moisture, and at the same time, to retain as much as possible of the aromatic and other desirable secretions of the species. The system adopted to attain this end is as simple as it is efficacious. In the harvest seasons the natives are seen in little family groups on the slopes of every hill, when the weather is dry, engaged in gathering the tea leaves. They do not seem so particular but strip the leaves off rapidly and promiscuously, and throw them all into round baskets made for the purpose out of split bamboo or rattan. In the beginning of May, when the principal gathering takes place, the young seed vessel are about as large as peas. These are also stripped off and dried with the leaves ; it is these seed vessels which we often see in our tea, and which have same slight resemblance to young capers. Where a sufficient quantity of leaves are gathered they are carried home to the cottage or barn, where the operation of drying is performed.

Restraint of Marriage.

The Supreme Court of Pennsylvania has decided that a testator can devise real estate to his widow on condition that she shall not marry again. In the Court of Common Pleas of Lancaster Co. such condition was held to be void upon the principles that contracts in restraint of marriage are not favored by the law.

"I resolve," says Bishop Beveridge, "never to speak of a man's virtues before his face, nor of his faults behind his back ;" a golden rule !

Baker's Steam Boiler Furnace.

We were present, on Tuesday evening last, at an exhibition made to a large company of scientific gentlemen, and capitalists, at the East Boston Flour Mills, showing the operation of Col Baker's improvement in steam engine furnaces. The sight was exceedingly interesting and somewhat novel, giving much pleasure to all who witnessed it. There are two important improvements introduced in this furnace, the value of which any intelligent person can see at a glance. Instead of a rapid draught through a straght chamber, beneath the boiler, we have the principle of gradual combustion perfected by a reverberatory flue—whereby the full resource of gases, and the most perfect application of the heat is secured. In addition, a large perforated iron plate extends across the furnace, close to the mouth of the coal grate, through which jets of atmospheric air are admitted from a tube opening into the external air, by which an immense volume of heat is generated from the decomposition of the air into its combustible gases, caused by the intense heat with which it is brought into instant contact. By these two principles, a more perfect combustion, a better application of the heat and a large increase of combustible gases, are steadily maintained The lower section of the furnace is a large, close chamber, opening into the flue at different points, through which ashes and dust fall ; and it is presumed, carbonic acid gas also—large quantities of which are generated in the burning of coal, greatly impeding combustion in the old furnaces, but almost entirely disposed of in this. Experiments will be made in a few days, however, to determine this point with more precision.

The practical results in a large number of cases where this furnace has been tried, it is said, fully to sustain what its theory promises. The saving in fuel is from twenty-five to forty per cent.; and the gain in power, with the diminished consumption, about the same, in every case.

[The above is from the Boston Journal.—Col. Baker's invention has been introduced into England and has been highly praised by foreign scientific periodicals. The contrivance of a perforated plate just at the upper surface of the coal, to admit the air there when the fire is newly mended, is the correct application of science, for the oxygen that then will unite with the dense carbonic acid gas, will form an inflammable mixture of gas, which must create a great deal of heat, which would be lost, and which is lost in furnaces of common construction. The principle however, is not new. We have spoken to a number of stove manufacturers to make their stoves with an upper perforated plate, across at the top of the fire, and with a slide to open and close the orifices when desired. This construction of stoves would save a great deal of fuel.

Habits of the Lion.

The habits of the king of beasts are not of that noble order which naturalists formerly ascribed to him. In the day-time he will almost invariably fly from man, unless attacked, when his courage is that of mingled rage and despair. It is said that even at night they do not like to seize a man from a party, especially if the persons exercise their voices ; and that the carcase of an antelope, or other game may be preserved untouched by hanging some stirrups on a branch near, so that the irons may clash together when blown by the wind ; a white handkerchief on the end of a ram-rod is another receipt for effecting the same object. The lion is a stealthy, cunning brute, never attacking unless he has the advantage, and, relying on his vast strength, feels sure of the victory. The natives tell incredible stories of his sagacity, which would almost make him a reasonable animal. There are well authenticated cases on record of lions carrying men away at night from the fire-side, but these are quite the exception. They are gregarious, as many as twenty having been seen in a troop.

By six qualities may a fool be known—anger without cause, speech without profit, charge without motive, inquiry without an object, putting trust in a stranger, and wanting capacity to discriminate between a friend and a foe.

TO CORRESPONDENTS.

"S. F. of N. Y."—Take the scale or oxide from your chain by steeping it a short time in water in which there is enough of sulphuric acid to make it sour. After this wash it in water and have the zinc melted in an iron pot with some sal ammoniac in it, sprinkled on the top, into which dip the chain for a short time and it will come out perfectly coated (galvanized.) You must not let the zinc boil or it will evaporate.

"J. P. P. of N. C."—It cannot be done—The power derived from the wheel would be less than the power to drive the pump by which you would drive the wheel. The power lost is the friction, which is a great deal, both as it regards the passage of the water through the pipe to the wheel, and the working parts of the pump. Do not spend a cent on the project for it is against the well established principles of science. We have heard of a few instances of engines having been used to pump water from a low level to a higher one to drive water wheels. These projects exhibit a want of mechanical science. Could it be done you would have a perpetual motion.

"D. M. of N. Y."—Your letter of the 24th ult. will be attended to as soon as possible, and the full particulars given.

"J. C. M. of Mich."—The engraving of your morticing machine was forwarded to your address on the 27th ult. We shall do all in our power towards facilitating your business, but the papers must wait their turn in the office.

"A. C. B. of N. C."—We forwarded on the 28th ult. 6 copies of Arnotts Gothic Architecture by Mail. We think you will be pleased with it.

"J. H. B. of Morris."—Will receive prompt replies to his letters, if he will inform us what State he resides in. The P. M. seems not to understand his business, or he would not allow letters to pass through his office without being properly stamped. Persons desiring information must furnish their address and pay postage, or they cannot receive attention.

"A. E. U. of Conn."—The price of the book referred to, is $3. We do not know of any better work on that subject.

"E. B. of Mass."—You will have to wait patiently until your turn comes. It is impossible for us to expedite the examination in the least.

"G. R. P., of N. Y."—Your model has been received and examined. The combination is not new, precisely the same arrangement is found in the machine of Commodore Barron, patented in 1830, he applied it to different purposes, but the invention covered all the novel points found in your model. $1 received.

"J. A. T. of Mass."—There is so much discrepancy between your drawings and description that we cannot obtain a clear understanding of your machine; either give us a working model or write so that we can understand, and your questions will be promptly answered by letter

"J. C. A. of N. Y."—We were somewhat surprised to receive your letter, and to find that you proposed to contradict principles in mechanics, considered heretofore as fixed as fate. Your last letter however explains the matter, and our advice would be, that you keep within the possibilities of science, rather than spend your time in constructing perpetual motions.

"J. H. B. of Ohio."—Messrs. Ball & Rice of Worcester, Mass., can build such a machine as you want. We passed through their establishment not long since and examined the improvements made by them on the "Daniel Planing Machine." Considering the price &c. we are of opinion that you would be pleased with one of these machines.

"H. J. of Kentucky."—You can file a Caveat at the Patent Office, with a fee of $20, which will secure you for one year, but we should think your better way would be, if your invention is valuable, to associate some one with you who has money, and make an application for a patent.

"T. E. D. of N. Y."—It is a matter of great difficulty for us to decide whether your improvements in the re-acting water wheel are new or not, without the opportunity of examing a model, or a clear drawing explained by letters of reference. You will see the importance of this from the great variety of water wheels now in use.

"J. S. A. of N. J."—Oval wheels have been used as cams or substitutes for the crank and are very old.

"H. E. A. of Wis."—We have never had an opportunity of witnessing the operation of Mr. R's suspension wheel. We have seen it and think very well of the principle.

"Messrs. R & C. of Pa."—We cannot inform you of the residence of Mr. J. B. unless you give us the date of his Patent.

"C. T. W. of Ky."—We forwarded you the back numbers of the present vol as near as possible. The German Grammar and the "Working Farmer" have also been sent.

"J. M. of Springfield."—Your letter containing $4, has been received. We shall be very glad to hear of your success with the Brooklyn Co.

"R. W. W. of Millwood."—We shall be very happy to present all the information upon Artesian Wells, which you speak of. You will oblige us by furnishing it as soon as possible, together with the drawings. Make them as plain and brief as possible.

"G. W. H. of R. I."—You will see by the notice this week that there is strong opposition to your statements regarding their possibility. The improvement on the Gin is exactly what Parkhurst has secured by patent, and it is good. We should like if you would get some of the plans fairly tried.

"J. A. E. of Boston," "L. S. E. of Pa." "E. B. W. and H. N. F. of N. H." "C. R. of Wis."—Your specifications and models have been forwarded to the Patent Office since our last issue.

Money received on account of Patent Office business since July 26 :—

L. D. G. of Ct. $58. A. P. of N. Y. $30
E. B W. of N. H $20. P. E. A. of Miss. $35

Advertisements.

Nitrogen, Laughing Gas.

Our atmosphere is composed of two gases, nitrogen and oxygen. The latter is the supporter of life, the former has been called *azote*, from the Greek, to signify its unfitness for supporting animal life. Nitrogen will combine with oxygen in various proportions, hence the mixture of the atmosphere has been called "mechanical," because it combines with oxygen in other proportions and forms nitric acid. Nitrogen gas may be obtained by equal weights of sulphur and iron filings made into a paste with water, and placed in a shallow dish, floating on water, and a bell jar full of atmospheric air be inverted over it. In the course of a few days, it will be found that the water has risen about one fifth way up the jar, the remaining gas being nearly pure nitrogen—the oxygen having been all absorbed by the mixture.

Nitrogen gas may be obtained from a piece of lean flesh meat, beef for example, which may be put in a retort along with very dilute nitric acid. At a heat of about 100° the gas is disengaged and may be collected over water. In this case it is obtained by the decomposition of the meat, which is a compound of oxygen, hydrogen, carbon and nitrogen.—Nitrogen will not support combustion; even phosphorus when immersed in a jar of nitrogen is instantaneously extinguished. It is fatal to animals confined in it. When mixed with pure oxygen, in the proportion of four parts of nitrogen, by volume, to one part of oxygen, a mixture is formed resembling atmospheric air in all its properties.

Nitrogen unites in five proportions with oxygen, and forms compounds, called

1. Nitrous oxide	: :	N+O.
2. Nitric oxide	: :	N+O2.
3. Hyponitrous acid	: :	N+O3.
4. Nitrous acid	: :	N+O4.
5. Nitric acid	: :	N+O5.

The first of these compounds is sometimes called the laughing gas, from the extraordinary effects which it produces upon the system when taken into the lungs. Sir H. Davy was the first chemist that inhaled any quantity of this gas; before his time it was supposed to be eminently noxious. The experiment of breathing this gas, cannot, however, be made with impunity, especially by those who are liable to a determination of blood to the head, or to palpitation of the heart.

Central Fires in the Earth.

The increasing temperature, found at increased depths in digging the Artesian wells, more particularly that of Grenelle in France, has been adduced by M. Arago, and other philosophers as proof of central fires in the earth. Commander C. Morten, known as the propounder of the "electrical origin of hailstones," and the vegetable origin of the basaltic columns of the Giant's Causeway, and those of Staffa, merely regards the increased temperature at increased depths as the natural consequence of increased pressure of the atmosphere, and as much a matter of course as the increased cold or diminished temperature found to exist on ascending mountains according as the atmospheric pressure diminishes in the ascent. The beautiful simplicity of this theory may, perhaps, induce the conviction of its alliance with nature. In corroboration we may justly remark that the artificial compression of air does elicit heat.

Substitute Paint Varnish.

Recipe for a composition to economise paint:—To one pound of gum shellac add 4 ounces of borax, and two quarts of water.—Boil till dissolved. These proportions may be varied according to the quality of the materials used. After the paint is prepared for use add nearly an equal quantity of the above and stir until it unites. The paint will then be thicker than before, and must be reduced with oil or spirits of turpentine. The paint will now cover twice the surface as at first.

Manufacture of Glass.

(*Continued from page* 357.)

Glasses are silicates, and the more silica there is in them the more perfect and hard they are. The most perfect glass is found in a state of nature—the rock crystal—but as this is nearly infusible, it is not possible to manufacture it. To render the silica fusible, certain fluxes are therefore added to it, such as potassa, soda, lime, and the oxide of lead. Silica fuses well with the alkalies, but the glass obtained absorbs moisture from the atmosphere, and is therefore rapidly changed; the lime and the oxide of lead is introduced to cure this defect.

Transparency and whiteness are the first properties of glass; therefore to obtain these, the articles employed in its manufacture, must be very pure, and the least possible quantity of flux used. A small quantity of the sulphate of potassa gives glass a greenish shade, soda gives it a yellow tint, and too great a quantity of lime makes it milky; iron makes glass bottle green, an excess of manganese, (which is used to take way the green of the iron,) oftentimes becomes a violet. Copper gives glass an emerald color, and charcoal makes glass a topaz yellow; therefore glass cannot be made in purity in smokey furnaces, without melting the materials in covered crucibles. The glass made in Bohemia is about the best in the world. It is very elastic and has a very beautiful sound, and is so hard that it will strike fire with a piece of steel. Glass that contains much lead is not hard. The silica that is used in Bohemia, for making glass, is crystaline quartz, calcined and pounded. The quartz is selected in parcels and the purest laid aside for making the superior kind of glass. The quartz is generally calcined in reverberatory furnaces, and when it is heated to a cherry red, it is withdrawn and thrown into a large tub of water, which is often renewed to keep it cold. Pine wood is generally employed in the calcining process. When the quartz is dry, it is pounded in hemispherical mortars, by cast iron pestles. Pure potash is the best flux that can be used. Soda is used in the manufacture of window glass. The lime that is used in Bohemia, is very pure and white. The stone of it is burned like quartz and slaked in the air, and then reduced to fine powder, when about 20 parts are used in the smelting, along with 100 parts of silica.

The wood employed for making the best glass, should be fine pine, slightly roasted before it used. The clay for the glass crucibles nearly the same as what is known as the "Stourbridge clay." Common window glass is made of 60 parts of pulverized quartz, 40 parts of common calcined potash, 5 of carbonate of lime, 100 parts of the refuse glass, and 100 of old broken glass.. The very white window glass is made of 100 parts pulverized quartz, 50 of calcined potash and 80 of carbonate of lime. There are various proportions of different materials. White sand, flint, and rock crystal, and salt, are used in quantities proportioned to the supply of the materials, in those places where they are found, to produce inferior, or superior glass.

Glass making has become an important American manufacture. Articles of crystal which a few years ago were imported from England, are now made cheaper and better in the United States. Philadelphia is famous for her crystal ornamental work, and the city of Brooklyn is fast advancing in an extensive glass business—the art is already carried to a high state of perfection. We believe that all our plate glass for mirrors is imported. In a few years this will cease to be the case. The materials for the glass manufacture are very abundant in the United States; it only requires capital wisely invested and the business energetically conducted, to insure the most triumphant success. It is a business that cannot be learned but by practice, competent artists are therefore essentially necessary to success in that, as well as every other business.

Mode of Breeding Leeches in Scinde.

The breeding of leeches in Europe, is kept a secret, so far as anything can be in that quarter of the world. The breeding of them was at one period almost entirely confined to a tribe of gipsies, but the secret got known and went abroad. In Great Britain, even to this day, the best description of leeches are procured from the Continent. In Ceylon, where the variety of leeches are more numerous, perhaps, than in any part of the world, the propagation of the sort used in phlebotomy is made a secret of. In India the leech propagators do all they can to keep the knowledge to themselves. But the way was carried to Europe and is as follows.

Burnt earthern vessels, commonly called "cottee pots," are used for this purpose, globular shape or form, being three feet in circumference, one ditto in height, and with mouth six inches in diameter, each pot being two-thirds filled with stiff black earth, containing a good portion of clay. To this add four handsful of finely-powdered dry goat or cow dung, two handsful of dried hemp-leaves finely powdered, with 2 ounces of asafœtida. The vessel is then filled to within three inches of the mouth with water, and the whole mixed up with a wand or stick. Leeches of full growth and of the largest size are required for propagation, varying perhaps, from three to five inches in length, after being placed on and glutted from the human body. The leeches are put, nineteen or twenty in each vessel: and an earthen cover is then placed over the mouth, and the whole smeared over with a coating of cow dung and earth, and placed in a sheltered spot, free from wind and sun. After the space of twenty-five days or a month on the cover being moved off about twenty cocoons will be found, of the size of a sparrow's egg and longer and of a spongy nature.—On being carefully torn open with the finger from five to fifteen small leeches will emerge. All of these are then placed in a pot of water, into which a table spoonful of sugar has been thrown. After ten days, it is requisite to feed them with blood from the human body for a period of three months, when they will have obtained the usual size for application. During the warm months, after a respite of ten days or so, the breeding leeches can again, be placed as above described. The leech appears to live about eighteen months, and any number can be procured in this way.

Rattlesnake Bite.

Wm. Milligan, of Jasper, Florida, sends to the Fayetteville North Carolinian, an account of a friend, T. J. Stewart, who was out hunting with him, being bitten by a rattlesnake, in the calf of the leg. The snake was about 4½ feet long with only six rattles, and his teeth went in half an inch deep. He immediately tied a bandage above the wound, went for some liquor, which he procured in fifteen minutes—give him half a pint. When they reached the house, he administered red pepper tea mixed with spirits, which he continued to give him, so that in 24 hours, he had used two or three quarts of spirits, which did not intoxicate him in the least. Although his leg was swelled somewhat the next day, and felt sore yet the man became well in a few days—the spirits counteracting the poison.—The drinking of spirits, very freely, in cases of being bitten by snakes, had before been tried, and proved to be effectual—and what is singular too, that however freely administered in such cases, the individual never becomes intoxicated.

To Preserve Milk.

If milk be introduced into bottles, then well corked and put into a pint of cold water and gradually raised to the boiling point, and, after being allowed to cool, be taken out and put away in a cool place, the milk may be kept perfectly sweet for half a year. Or it may be evaporated to dryness, by a gentle heat and under constant stirring. A dry mass will thus be obtained, which when dissolved in hot water, is said to possess all the qualities of the best milk.—Ex.

The latter process to preserve milk, will do but not the first.

A Summer Drink.

Two ounces of sassafras shavings upon which is to be poured two quarts of boiling water; when cold add a half ounce of the essence of peppermint, and sweeten with sugar to suit the palate. The cost of these ingredients will be about six cents, affording a delicious beverage admirably adapted from its tonic, warming and astringent properties to preserve the healthy action of the stomach and bowels.

Another Summer Drink.

A gallon of water sweetened with molasses, made tart with vinegar, and hot with ginger.

The great secret about the quality of all summer drinks is to have them as simple as possible and to partake of them with a prudent moderation. We have no great opinion of peppermint in any beverage, others who like it better may have a different opinion.

Syrup for Coughs.

Take of boneset as much as you can grasp in your hand, and two quarts of water; boil it to one quart; add a pint of molasses; let it simmer a few minutes, and then strain and set it by to cool. Take one gill three times a day before eating.

Take the iron scales from a blacksmith's forge, grind them in a coffee mill, and then heat them red hot in a retort and plenty of oxygen gas will be obtained.

The muriate of iron was given to Madame Laborde while in a collapsed stage of cholera, and it cured her.

LITERARY NOTICES.

Encyclopedia of Chemistry.

No. 16 of this great work, published by Carey & Hart, of Philadelphia, and edited by Professor Booth, assisted by Mr. C. Morfitt, is on our table. This work should be in every library, as the best book of chemical reference in existence, when completed. It covers the whole field of chemistry.

American Locomotives.

Part 2 of Emil Reuther's splendid work on American Locomotives, is now upon our table. It contains views of Ross Winans' Coal Burning Locomotive, the Delaware, lithographed in handsome style, together with the continuation of the Treatise on Steam which we noticed when the first part was issued—The drawings in this work are all to scale, and they are therefore, of the utmost value to working engineers. Each number costs only 75 cents.

Holden's Dollar Magazine for August, is a very interesting number. It contains a good engraving of Pyramid Lake, in Oregon, described in Fremont's narrative of his adventurous journey through that country. He furnishes a very interesting account of this wonder, which cannot but prove interesting to the readers of this valuable Magazine, it also presents a view of Monterey in California, an object of interest to 'money lovers.'—The scene lends enchantment to the extended imagination, and might repay an attempt at the reality. The magazine is readable throughout and as usual treats the "topics of the month" in a very interesting manner.

Mr. Holden is now in California, and we hope for the sake of his dear readers that he will furnish some golden tales for the future numbers of his Magazine.